

# LS 400 EM Gear Shaping Machine with electronic helical guide



**LIEBHERR**

# Flexible, precise, productive and compact



The new Liebherr LS 400 EM gear shaping machine is designed to satisfy all of the requirements of job shops, prototype and small batch size production. The machine offers users plenty of opportunity to be able to machine a diverse and wide spectrum of workpieces. With a maximum stroke length of 70 mm, it can machine workpieces up to a diameter of 400 mm and module of 5 mm. To ensure this high flexibility at the quality expected from Liebherr, the table drive has been completely overhauled and redesigned. The table drive is directly driven, and an extremely rigid bearing concept is utilized.

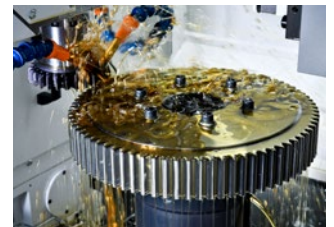
The machine is designed with an axial movable cutter head slide, which enables a wide variety of parts to be manufactured with minimal setup times. Thanks to variable machining positions, multiple gears can be machined within a single clamping fixture. With the electronic helical guide combined with cutting-edge electromechanic drive technology and a menu-guided CNC control system, lead and helix angle corrections can be implemented without effort. The machine concept is equally suitable for wet machining and dry machining.

## Application areas

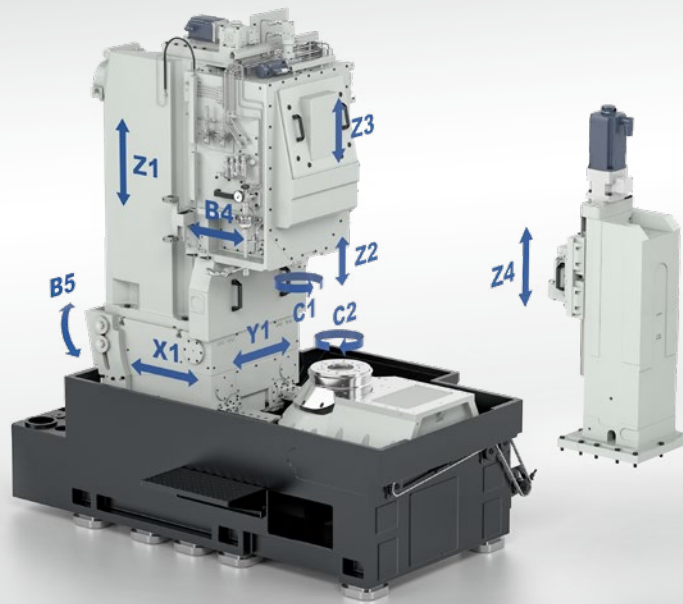
- Contract manufacturing of small to medium-sized batches
- Prototype and replacement part machining

## Customer benefits

- Greatest flexibility in production
  - Machining of external and internal gears
  - Shaping of multiple gears with different helix angles
  - Easily programmable helix angles up to 50° with correction options
- Eliminates time-consuming set-up process
- Introduces tooth lead modifications (programmable)



# The machine concept



## Axes

- X1: Radial movement of column slide
- Y1: Lateral column offset
- Z1: Stroke position positioning axis
- Z2: Stroke length adjustment
- Z3: Tool stroke movement
- Z4: Tailstock vertical movement
- B4: Tool back-off movement
- B5: Column swivel axis
- C1: Rotary movement of tool
- C2: Rotary movement of workpiece

## Possible lead trace modifications

- Symmetrical crowning
- Symmetrical taper
- Asymmetrical crowning and tooth alignment modifications

## Advantages of electronic helical guide

- Modifications can be easily programmed
- Excellent lead quality thanks to the micron-precise correction option (DIN 1 to 3)

## LS 400 EM

Max. workpiece diameter	mm	400
Max. module	mm	5
Max. stroke length	mm	70
Max. stroke speed	DS/min	1,500
Drive power	kW	19.5
Cutter spindle diameter	mm	85
Center distance of cutter spindle / workpiece table	mm	-30 to 285
Axis angle cutter spindle / workpiece table	°	+/- 0,5
Column swivel axis	°	-1 to + 12
Cutter head slide stroke position range	mm	275
Table plate diameter	mm	320
Table speed	rpm	400
Dimensions (L x W x H)	mm	4309 x 2230 x 3011
Total weight	kg	13,000

# Your solution provider



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